

## CLAIMS

1. A communication system that transmits and receives a digitized signal over an optical link, the system comprising:

a first transmitter/receiver that receives a first signal and includes a digitizing circuit that converts the first signal into digital data, a modulating device that receives the digital data and that modulates optical components, and the optical components that transmit the optical signal containing the digital data;

a second transmitter/receiver including optical components that receive the optical signal, a converter that converts the optical signal to the digital data a decoding circuit that converts the digital data to a second signal, and a transmitter that transmits the second signal to a destination.

2. The system as claimed in claim 1, further including:

a first antenna, coupled to the first transmitter/receiver, that receives the first signal; and

a second antenna, coupled to the second transmitter/receiver, that transmits the second signal.

3. The system as claimed in claim 1, wherein the first and second transmitter/receivers each include a telescope that focuses the optical signal.

4. The system as claimed in claim 1, wherein the first signal is a cellular telephone signal.

5. The system as claimed in claim 1, wherein the first signal includes a plurality of signals, wherein the first transmitter receiver converts each signal to a corresponding digital signal, and wherein the modulating device modulates each corresponding digital signal with a corresponding optical signal having one of a plurality of predetermined wavelengths.

6. The system as claimed in claim 5, wherein the first and second transmitter/receivers each include a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths.
7. The system as claimed in claim 5, wherein the first and second transmitter/receivers each include a telescope, the telescope having filters and splitters to enable the telescope to focus optical signals having any of the predetermined wavelengths.
9. A method for transmitting a digitized signal over an optical link from a source to a destination, the method comprising acts of:
  - receiving a first signal from the source with an antenna;
  - converting the first signal to digital data;
  - modulating an optical signal with the digital data;
  - transmitting the optical signal over an optical link with a transmitter;
  - receiving the optical signal containing the digital data from the optical link with a receiver;
  - demodulating the optical signal to recover the digital data;
  - converting the digital data into a second signal; and
  - transmitting the second signal to the destination.
10. The method as claimed in claim 9, wherein the act of transmitting the digital data includes focusing the optical signal containing the digital data with a telescope.
11. The method as claimed in claim 9, wherein the act of receiving the first signal includes receiving a cellular telephone signal.
12. The method as claimed in claim 11, wherein the act transmitting the second signal comprises providing the second signal to a base station.
13. The method as claimed in claim 9, wherein the act of receiving the first signal includes: receiving a plurality of signals;

deriving digital data from each of the plurality of signals; and  
modulating an optical signal with the digital data derived from each of the plurality of signals, each optical signal having a predetermined wavelength to be associated with each of the plurality of signals.

14. The method as claimed in claim 13, wherein the act of transmitting the optical signal comprises transmitting each optical signal with a corresponding telescope.

15. The method as claimed in claim 9, wherein the acts of transmitting the optical signal comprises splitting each optical signal and filtering each optical signal to provide an optical signal at a predetermined wavelength.